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EXAMINER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte NATE ELLIS, RICHARD OWENS, and
LARS DAVID MORAVY

Appeal 2015-004040
Application 11/849,199
Technology Center 3600

Before JENNIFER D. BAHR, LINDA E. HORNER, and
BRANDON J. WARNER, *Administrative Patent Judges*.

HORNER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Nate Ellis et al. (Appellants)¹ seek our review under 35 U.S.C. § 134 of the Examiner's decision, as set forth in the Non-Final Action dated May 22, 2014 ("Non-Final Act."). In the Non-Final Action, the Examiner rejected claims 1–14 under 35 U.S.C. § 103(a) as unpatentable over Walton (US 3,174,587, issued March 23, 1965), Kobayashi (DE 3518858 A1, published November 28, 1985), and Fattahi (US 4,892,113, issued

¹ Appellants identify Honda Motor Co., Ltd. as the real party in interest.
Br. 3.

January 9, 1990). Non-Final Act. 3–7. We have jurisdiction under 35 U.S.C. § 6(b). We AFFIRM.

CLAIMED SUBJECT MATTER

Appellants’ claimed “subject matter relates to a Magneto Rheological (MR) fluid damper system for use in a vehicle suspension system and its method of use.” Spec. para. 1. Claims 1, 6, and 12 are independent. Claim 1, reproduced below, is illustrative of the subject matter on appeal.

1. A magneto rheological (MR) damper comprising:
 - a cylinder including a working chamber and a rebound chamber, wherein at least one of the working chamber and rebound chamber includes an MR fluid;
 - a hollow piston rod;
 - a piston assembly operatively connected to the hollow piston rod and housed within the cylinder, wherein a flow gap is formed by one of the cylinder and the piston assembly, and wherein the piston assembly includes,
 - a magnetic core, and
 - a coil located adjacent the magnetic core and configured to generate a magnetic field upon application of an electric current to the coil; and
 - a twisted pair of electrical conductors housed in the hollow piston rod such that at least a portion of the electrical conductors are twisted within the hollow piston rod, wherein the coil is configured to be connected to an electrical source via one of the twisted pair of electrical conductors that extend through the piston rod, and the other of the twisted pair of electrical conductors provides an electrical return path from the coil to the electrical source, and wherein the twisted pair of electrical conductors are twisted such that a load capacitance of the damper is reduced as compared to an untwisted pair of electrical conductors.

ANALYSIS

Appellants present arguments for patentability of independent claim 1, and do not present separate arguments for dependent claims 2–5 and 12.

Br. 15–23. We select claim 1 as representative of this group, with claims 2–5 and 12 standing or falling with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Appellants present separate arguments for independent claim 6 and its dependent claims 7–11, 13, and 14, which we address below. Br. 15–17.

Claims 1–5 and 12

With regard to claim 1, the Examiner found that Walton discloses “a magneto rheological (MR) damper,” substantially as claimed, including “a pair of electrical conductors 72, 72 housed in the hollow piston rod.” Non-Final Act. 3. The Examiner acknowledged that Walton does not disclose “that the pair of electrical conductors is twisted.” *Id.* at 4. However, the Examiner found that Kobayashi² discloses “the concept of twisting a pair of electrical conductors 80, 81 in figures 14 and 18; wherein the twisted pair is housed in the bore of hollow piston rod 24.” *Id.* The Examiner acknowledged that Kobayashi does not disclose that the twisted pair of conductors has reduced capacitance relative to an untwisted pair, but cited to Fattahi for “teach[ing] the old and well known knowledge of a reduction in capacitance when the two conductors are twisted together.” *Id.* (citing Fattahi, col. 3, ll. 45–50). The Examiner determined that it would have been

² The Examiner provided an English language translation of Kobayashi (“Kobayashi Translation”) in an appendix to the Non-Final Action. Although the translation does not include page numbers, for reference convenience, we designate the page titled “DESCRIPTION DE3518858” as page 1 and number the remaining pages consecutively therefrom.

obvious to one of ordinary skill in the art to modify the damper of Walton to include a twisted pair of conductors, as taught by Kobayashi, “in order to take advantage of the benefits of reducing capacitance[,] as taught by Fattahi.” *Id.*

Appellants argue that Kobayashi does not disclose a twisted pair of electrical conductors. Br. 16. In particular, Appellants assert that “Kobayashi’s Figs. 14 and 18 merely employ a drafting technique used to distinguish the lead wires 80, 81 as electrical wires as opposed to drawing the lead wires 80, 81 with parallel straight lines which may be inaccurately construable as a cylindrical structural element.” *Id.* According to Appellants, “the schematic representation of the lead wires 80, 81 by Kobayashi does not communicate the lead wires 80, 81 as being twisted.” *Id.* This argument is not persuasive of error because at least Figure 14 of Kobayashi depicts lead wires 80, 81 as twisted. In particular, the three-dimensional cutaway view of Figure 14 clearly depicts lead wires 80, 81 twisting around each other. Appellants’ assertion that the figures employ a drafting technique is attorney argument unsupported by sufficient evidence and does not persuade us to disregard the disclosure of twisted wires as clearly shown in Figure 14. Thus, we are not persuaded of error in the Examiner’s finding that Kobayashi discloses a twisted pair of electrical conductors, which is supported by a preponderance of the evidence.

Appellants argue that Kobayashi “fails to disclose any capacitance reduction due to a twisted pair of wires.” *Id.* This argument is not persuasive of error because the Examiner has set forth sufficient evidence demonstrating that twisting a pair of conductors to reduce capacitance

relative to an untwisted pair of conductors would have been within the background knowledge possessed by a person having ordinary skill in the art at the time of Appellants' invention. In particular, the Examiner cited to Fattahi for providing evidence of "the old and well known knowledge of a reduction in capacitance when the two conductors are twisted together." Non-Final Act. 4 (citing Fattahi, col. 3, ll. 45–50). Fattahi discloses that, "[b]ecause the capacitance of a coaxial cable increases with length, it is preferred to use a cable with twisted pair wiring where the length of the cable is about 50 feet or more." Fattahi, col. 3, ll. 45–50. In this regard, we agree with the Examiner that "reducing capacitance is a result of twisting the pair of wires." Ans. 5. As such, because Kobayashi discloses an MR damper having a twisted pair of lead wires 80, 81 (*see* Kobayashi, Fig. 14), one of ordinary skill in the art would have recognized that Kobayashi's twisted lead wires 80, 81 would have reduced capacitance relative to an untwisted pair of conductors.

Appellants argue that Fattahi does not disclose "twisted electrical conductors inside a hollow rod of a magneto rheological (MR) damper," or "twisting a pair of electrical conductors to reduce capacitance for an MR damper." Br. 17. This argument against Fattahi is not persuasive because it fails to address the Examiner's rejection as presented, which is based on a determination of what would have been obvious to one of ordinary skill in the art in view of the combined teachings of the prior art. Non-Final Act. 3–4. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. *See In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (citing *In re Keller*, 642

F.2d 413, 425 (CCPA 1981)). As discussed *supra*, the Examiner relied on Kobayashi for disclosing a twisted pair of electrical conductors inside a hollow piston rod of an MR damper. Final Act. 4. The Examiner relied on Fattahi only to demonstrate that twisting a pair of conductors to reduce capacitance was within the background knowledge of a person having ordinary skill in the art. *Id.*

Appellants argue that the Examiner's rejection is improper because the proposed modification of Walton would render the reference unsatisfactory for its intended purpose. Br. 18–19. In particular, Appellants assert that “Fattahi teaches that a coaxial cable having a length of fifty feet or more can cause undesirable capacitance,” and “Fattahi implements a cable including a twisted pair of wires if the cable spans a length in excess of fifty (50) feet.” *Id.* at 19. According to Appellants, “the compact nature of Walton's or Kobayashi's damper necessary for installation in a vehicle would be destroyed with a fifty (50) foot length of the twisted electrical conductors inside the damper.” *Id.*

We are not persuaded by Appellants' argument, which appears to be based on bodily incorporation of the control cable referenced by Fattahi into the MR damper of Walton. This is not the proper inquiry to determine obviousness of the claimed subject matter. *See In re Keller*, 642 F.3d at 425 (“The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of a primary reference; . . . [r]ather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.”); *see also KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (“[a] person of

ordinary skill is also a person of ordinary creativity, not an automaton”). Appellants’ argument fails to address the Examiner’s proposition (Final Act. 4) that one having ordinary skill in the art would have been led to modify the MR damper of Walton to include the twisted wires of Kobayashi to achieve the known benefit of reducing capacitance demonstrated by Fattahi. *See also KSR*, 550 U.S. at 418 (“the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for [an examiner] can take account of the inferences and creative steps that a person of ordinary skill in the art would employ”). Additionally, Appellants do not set forth sufficient evidence or persuasive technical reasoning to support the assertion that “the reduced capacitance taught by Fattahi could not be achieved with the length required for electrical conductors of the dampers taught by Walton and Kobayashi.” Br. 19.

Appellants next argue that the Examiner’s rejection is based on impermissible hindsight. Br. 20. In particular, Appellants assert that “[n]one of Walton, Kobayashi, and Fattahi disclose[s] the problem being solved by an MR damper in accordance with Appellant[s’] claim.” *Id.* Appellants’ argument amounts to an assertion that the Examiner used impermissible hindsight reasoning because the references do not disclose using twisted conductors to reduce capacitance in an MR damper. This argument is unpersuasive for two reasons. First, the argument appears to urge us to apply a strict teaching, suggestion, or motivation (TSM) test for obviousness. Rigid application of the TSM test was explicitly disavowed by the Supreme Court in *KSR*, 550 U.S. at 419. Second, Appellants’ argument

does not address the Examiner's articulated reasoning for the conclusion of obviousness.

We agree with the Examiner that the proposed combination involves simply "[a]pplying a known technique of twisting wires as taught by Kobayashi to a known MR damper of Walton to yield predictable results of reducing capacitance as shown by Fattahi." Ans. 5; *see KSR*, 550 U.S. at 417 ("[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill."). Appellants have not asserted or provided evidence to show that application of Kobayashi's lead wire twisting technique to the conductors of Walton's MR damper would have been beyond the level of skill of one of ordinary skill in the art. Moreover, Appellants do not identify any knowledge relied upon by the Examiner that was gleaned only from Appellants' disclosure and that was not otherwise within the level of ordinary skill at the time of the invention. *See In re McLaughlin*, 443 F.2d 1392 (CCPA 1971). As such, we are not persuaded by Appellants' assertion that the Examiner relied on impermissible hindsight in reaching the determination of obviousness.

Appellants argue that "Kobayashi expressly teaches away from reducing capacitance in a shock absorber by mounting the measuring unit 71 to move with the piston rod 24." Br. 21. According to Appellants, "Kobayashi discloses that all undesirable capacitance is prevented by Kobayashi's disclosed arrangement, without relying on a twisted pair of wire." *Id.* This argument is not persuasive because it does not point out

why a person of ordinary skill, upon reading the reference, would be led in a direction divergent from the path taken by Appellants. *See In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994). Prior art does not teach away from claimed subject matter merely by disclosing a different solution to a similar problem, unless the prior art also criticizes, discredits or otherwise discourages the solution claimed. *See In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004) (mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives). Although Kobayashi discloses reducing stray capacitance by mounting measuring circuit unit 71 to a shock absorber such that it moves with piston rod 24 (Kobayashi Translation 12), we do not find such a disclosure to discredit or discourage reducing capacitance by twisting lead wires 80, 81. Instead, this disclosure demonstrates that Kobayashi recognizes that capacitance is a known issue in MR damper systems. Moreover, even if Kobayashi prevents undesirable capacitance by a means other than twisted conductors, this does not take away from the fact that the reference discloses twisted lead wires 80, 81 in an MR damper. *See Kobayashi*, Fig. 14.

Appellants argue that Fattahi is non-analogous art because the reference “is not from the same field of [endeavor] as the claimed invention” (Br. 22) and “is . . . not reasonably pertinent to the problem with which the invention is involved” (*id.* at 23). This argument does not persuade us of error in the Examiner’s rejection because the Examiner did not rely on Fattahi for any teaching used to modify Walton or Kobayashi. Instead, the Examiner cited to Fattahi merely as providing evidence regarding the background knowledge of one of ordinary skill in the art. *See Non-Final*

Act. 4 (the Examiner explaining that “Fattahi is cited to teach the old and well known knowledge of a reduction in capacitance when the two conductors are twisted together”). In other words, the Examiner relied on Fattahi simply to demonstrate that one of ordinary skill in the art would recognize that a twisted pair of conductors, as taught by Kobayashi, would have the benefit of reduced capacitance relative to the untwisted pair of conductors taught by Walton. *See* Ans. 6 (the Examiner explaining that “Fattahi provides the motivation to twist the wires in order to reduce capacitance”). Additionally, Appellants do not offer any evidence or persuasive technical reasoning to refute the Examiner’s position that “the teaching of Fattahi to twist the wires to reduce capacitance between two conductors . . . [would be] applicable to any length of wires depending on how sensitive the system would be in tolerating electrical noises.” *Id.* at 4.

For the above reasons, Appellants have not demonstrated error in the Examiner’s determination that the subject matter of claim 1 would have been obvious. As such, we sustain the Examiner’s rejection of claim 1, and of claims 2–5 and 12 falling therewith, under 35 U.S.C. § 103(a) as unpatentable over Walton, Kobayashi, and Fattahi.

Claims 6–11, 13, and 14

Appellants rely on the same arguments presented for claim 1 to contest the rejection of independent claim 6. Br. 15–23. For the same reasons discussed *supra* in our analysis of the rejection of claim 1, these arguments are not persuasive of error in the rejection of claim 6.

Appellants additionally argue that Kobayashi does not disclose the language in claim 6 that “the twisted pair of electrical conductors are twisted such that electromagnetic interference in the control line is reduced as compared to an untwisted pair of electrical conductors.” *Id.* at 16. The Examiner responds, with reference to paragraph 36 of the Specification, that “the reduction in electromagnetic interference is a result of twisting the pair of wires” in the same way that “reducing capacitance is a result of twisting the pair of wires.” Ans. 5; *see* Spec. para. 36 (describing that, “theoretically, the twisted conductors should produce little or no interference and cancel out each other’s noise characteristics due to their twisted nature”). In this regard, we agree with the Examiner that the reduction in electromagnetic interference recited in the claim is simply a result of conductors being twisted. *See* Ans. 5 (the Examiner explaining that “[r]educing electromagnetic interference is another advantage to be realized by twisting the pair of wires”). As discussed above, Kobayashi discloses an MR having twisted lead wires 80, 81. *See* Kobayashi, Fig. 14. As a result of the twisting, lead wires 80, 81 have reduced electromagnetic interference relative to an untwisted pair. Thus, we are not persuaded by Appellants’ argument that Kobayashi fails to disclose a twisted pair of conductors that reduces electromagnetic interference.

Appellants also argue that Walton does not disclose “a working chamber” and “a rebound chamber in fluid communication with the working chamber,” as recited in claim 6. Br. 17. In particular, Appellants assert that Walton’s magnetic particles 78 are not chambers and “a single element (magnetic particles 78) disclosed by Walton cannot show two separate and

distinct features (a working chamber and a rebound chamber) as recited in claim 6.” *Id.* This argument is not persuasive of error because Figure 2 of Walton discloses a damper having a working chamber and a rebound chamber. Walton, Fig. 2; *see also* Ans. 6–7 (the Examiner identifying a working chamber and a rebound chamber in an annotated reproduction of Figure 2 of Walton). Thus, Appellants do not apprise us of error in the Examiner’s finding that Walton discloses a working chamber and a rebound chamber, which is supported by a preponderance of the evidence.

For the above reasons, we sustain the Examiner’s rejection of claim 6, and of dependent claims 7–11, 13, and 14, for which Appellants do not present any separate arguments, under 35 U.S.C. § 103(a) as unpatentable over Walton, Kobayashi, and Fattahi.

DECISION

The decision of the Examiner to reject claims 1–14 is AFFIRMED.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED